

REMARKS

Claims 1, 2 and 6-10 are pending in this application. By this Amendment, the specification and claims 1, 2, 8 and 9 are amended. Support for the amendments can be found, for example, in the specification (see paragraphs [0014], [0028] and [0029]). No new matter is added.

In view of the foregoing amendments and the following remarks, reconsideration and allowance of the claims are respectfully requested.

I. Rejections Under 35 U.S.C. §103

The Patent Office rejects (1) claims 1, 2, 6 and 8-10 under 35 U.S.C. §103(a) as allegedly being unpatentable over WO 02/05035 to Takei et al. as evidenced by U.S. Patent Application Publication No. 2003/0146416 ("Takei"); and (2) claim 7 under 35 U.S.C. §103(a) as allegedly being unpatentable over Takei in view of U.S. Patent Application Publication No. 2002/0110665 to Rutter et al. ("Rutter"). These rejections are respectfully traversed.

Claim 1 recites, *inter alia*:

A gap fill material forming composition...comprising... a polymer having a weight average molecular weight of 5,000 to 20,000, the polymer containing components having a molecular weight of 3,000 or less in a rate of 20% or less, the polymer consisting of a structural unit of formula (1)...

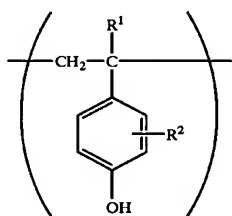
Claim 2 recites, *inter alia*:

"A gap fill material forming composition...comprising... a polymer having a weight average molecular weight of 5,000 to 20,000 and containing components having a molecular weight of 3,000 or less in a rate of 20% or less, the polymer consisting of a structural unit of formula (1) and a structural unit of formula (2)...

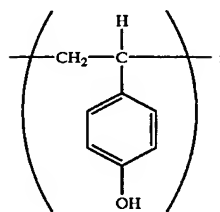
(Emphasis added). One of ordinary skill in the art would have had no reason or motivation to have modified the composition of Takei to have included at least the above features of claims

1 and 2, with any reasonable expectation of success, at least because (1) the majority of the polymers disclosed by Takei have phenol groups, and (2) the Examples in Takei demonstrate that compositions prepared with a hydroxypropyl methacrylate have inferior planarizing ability.

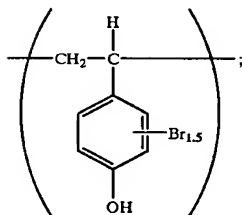
Takei is directed to a composition comprising a polymer and a solvent (Takei, paragraph [0013]). Takei discloses several examples of suitable polymers, specifically ones that comprise at least one repeating unit of Formulas (1) to (7) (Takei, paragraphs [0021] to [0036]). Formulas (1) to (7) of Takei are illustrated below for convenience:



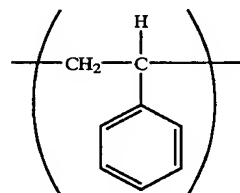
Formula (1)



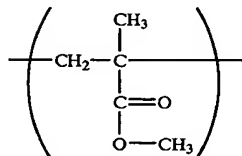
Formula (2)



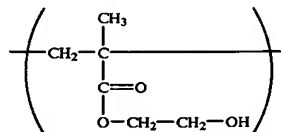
Formula (3)



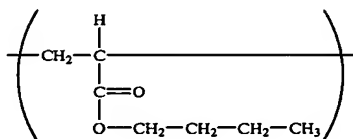
Formula (4)



Formula (5)



Formula (6)



Formula (7)

Formulas (1) to (7) of Takei

As shown above, the repeating units of Formulas (1), (2), (3) and (4) of Takei all have phenol groups, thereby resulting in polymers having a phenol structure. For the remaining three repeating units, Takei expressly discloses that polymers which include repeating units of Formulas (5), (6) and (7), also include repeating units of Formula (2) of Takei (Takei, paragraphs [0031] to [0037]). As a result, the compositions disclosed by Takei all have phenol groups, either by repeating units of Formulas (1), (2), (3) and (4) of Takei, or by a combination of repeating units of Formulas (5), (6) and (7), with repeating units of Formula (2) of Takei.

Takei further discloses the preparation of four Synthetic Examples, three of which comprise a phenol monomer. Only Synthetic Example 4 has hydroxypropyl methacrylate, as acknowledged by the Patent Office (Takei, paragraphs [0115] to [0127] and Office Action, page 10). Takei uses the polymers prepared in the Synthetic Examples to prepare eleven Examples and five Comparative Examples (Takei, paragraphs [0131] to [0149]). The hydroxypropyl methacrylate composition of Synthetic Example 4 is present only in Comparative Examples 3 and 4, Comparative Example 3 having a polyhydroxy propyl methacrylate having a weight-average molecular weight of 130,000 and Comparative Example 4 having a copolymer of p-vinylphenol and methyl methacrylate (Takei, paragraphs [0127], [0147] and [0148]). Based on the experimental results of Takei, both Comparative Examples 3 and 4 demonstrate inadequate and inferior planarizing abilities or flattening properties, when compared to Examples that were made without hydroxypropyl methacrylate or methyl methacrylate (Takei, paragraphs [0163] and [0165]; and Tables 2 and 3).

Takei thus provides no reason or rationale for one of ordinary skill in the art to have selected a polymer having only a structural unit of formula (1), or structural units of formula (1) and (2), as recited in claims 1 and 2, respectively, without the benefit of Applicants'

specification. Given the unpredictability of how various chemicals will react with one another, it is respectfully asserted that the Office Action must provide some reason or rationale that would have guided one of ordinary skill in the art to have selected a polymer that consists only of structural units of formula (1), or structural units of formula (1) and formula (2), from Takei's broad disclosure of compositions. Such a person would have had to also ignore the fact that Takei expressly discloses inferior results with respect to a polymer having methacrylate, in order to establish a *prima facie* showing of obviousness.

The Patent Office merely applies Rutter as allegedly disclosing additional features recited in dependent claim 7. Thus, Rutter does not cure the deficiencies of Takei with respect to claims 1 and 2. More specifically, Rutter is directed to compositions and methods for protecting apertures in the manufacture of electronic devices (see Rutter, Abstract).

Based on the above, Takei, alone or in combination with Rutter, would not have rendered obvious claims 1 and 2. The remaining claims variously depend from claim 1 and, likewise, would not have been rendered obvious by Takei and/or Rutter for at least the reasons set forth above with respect to claim 1, as well as for the additional features recited therein.

Accordingly, reconsideration and withdrawal of the rejections are respectfully requested.

II. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of the claims are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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Attachments:

Petition for Extension of Time
Request for Continued Examination

Date: September 2, 2010

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